



Delegation of the European Union to China

June 2011

RESEARCH AND INNOVATION HIGHLIGHTS IN CHINA¹

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EDITORIAL

Dear colleagues,

We are pleased to present you the research and innovation highlights in China and to report the progress of the month in the EU-China S&T relations.

In June, as part of the follow-up to the 9th Joint Steering Committee of the EU-China S&T Agreement held in March in Brussels, Director Maive Rute and Head of Unit Peter Fisch visited in China and unveiled new grounds for cooperation in food, agriculture and biotechnologies research and in evaluation. In addition, the European Research Council (ERC) visited Beijing where information sessions were organised in the key research institutes and universities to publicize funding opportunities. The Delegation was pleased to participate in BioEco 2011, in Tianjin, a high-level international conference.

In China, new actions and instruments were announced in June on research and innovation. State Councilor Liu Yandong announced at the BioEco Conference that China will spend 2 trillion yuan on S&T in the next five years, making biotechnology a major priority. Increased fund will be input in the National Natural Science Foundation to reach 12 billion yuan in 2011 with extended funding duration and increased amount per project. The Chinese Academy of Sciences' *Innovation 2020* programme, recognized as a new milestone for the Academy, sets out its strategic priority areas in research and innovation.

In a move to translate S&T results into productivity and to enhance the innovative capacity of enterprises, China central budget has set aside 818 million yuan in the overall drive for transforming the industrial economies and the economic growth pattern, giving emphasis to two sectors including the key mechanic components and low carbon and environmental protection. To mobilize and enhance the innovative capacities of the State-owned enterprises (SOE), an MOU was concluded between the Ministry of S&T and the State-owned Assets Supervision and Administration Commission to provide support to the SOE's technology innovation efforts. On the market and financing perspective, to bridge technologies and financial resources, the first intellectual property exchange in China was inaugurated in Tianjin. Under "People", the national plan for talent development has set a target of 180 million talent pool by 2020 with 15% of GDP to be spent on human resources. CAS announced a new international cooperation award for international young scientists to invite more foreign researchers, and through the Thousand Talent Programme, initiated schemes to attract overseas talents.

In more specific thematic fields, you will be interested to read the active research and technology and innovation developments as well as the new trend and policies in a global context. The international dimension of S&T activities also witnessed concrete conclusions achieved with France, UK, Slovenia and Italy in terms of the priority areas for cooperation as well as the cooperation mechanisms.

Please note that the next Highlights will be available in September, covering July and August. We hope you enjoy reading.

Best wishes,

Philippe Vialatte
Head of S&T and Environment Section

EU-CHINA EVENTS

Visit of Ms. Maive Rute to China

From 14 to 21 June, Ms. Maive Rute, Director for Biotechnologies, Agriculture and Food in the DG Research and Innovation, visited China (Changsha, Xi'an and Beijing). During her visit, Ms. Rute launched the first EU-China programme level cooperation project – OPTICHINA – in plant breeding, discussed the possibility for the next programme level cooperation in the field of fibre crops on the occasion of the EU-China Workshop on Sustainable Development and Diversity Usage of Fibre Crops and opened the floor for further discussions in particular in the field of animal health or animal production. Ms. Rute and her counterpart Mr. Wang Ren, Vice President of Chinese Academy of Agricultural Sciences, jointly launched the EU-China Task Force on Food, Agriculture and Biotechnologies Research under the umbrella of the EU-China Joint Steering Committee of the S&T agreement, the first of its kind, and held the first working meeting to discuss priority areas of mutual interest and benefit for further cooperation. The Director also attended the Info Day for EU FP7 in Changsha and paid a field visit to Yangling Agricultural High Tech Park and to the Northwest University of Agriculture and Forestry located in Xi'an.

MOST and DG R&I Hold Talks on evaluation

As agreed in the 9th Joint Steering Committee EU-China S&T agreement in March and at the invitation of the National Centre for S&T evaluation (NCSTE), Mr. Peter Fisch, Head of Unit in DG Research and Innovation, paid a visit to China and held bilateral working meetings with the key interlocutors on evaluation including the Department of Development Planning in the Ministry of Science and Technology, Chinese Academy of Sciences, and NCSTE. The meetings briefed about China's S&T evaluation development, the progresses and problems during the period of 11th five-year plan, as well as the main direction and ideas in the 12th five-year period. EU spoke highly of the S&T evaluation in Europe, and briefed the Chinese side on the Seventh Framework Programme. The two sides exchanged opinions on a series of issues related mainly to ex-post evaluation. With a strong basis for cooperation in S&T evaluation, both called for further exchange and collaboration. EU-China Workshop on Science and Technology Evaluation was held during the visit.

European Research Council Presentation tour in Beijing

The European Research Council (ERC) representatives, led by Professor Alain Peyraube, Member of the ERC Scientific Council, held a presentation tour in Beijing from 15 to 17 June. The information sessions aimed to raise awareness of the ERC and present the ERC structure, the grant schemes, communications strategy and to share the real-life experience of a successful Chinese grantee to top-notch research institutes and universities based in Beijing including Peking University, Tsinghua University, Renmin University, and the Chinese Academy of Sciences. A session was also held at the EU Delegation for the European embassies, S&T funding agencies and researchers based in China receiving the interest of the Chinese media. The ERC visitors also held a working meeting with the China National Contact Point for FP7, the China-EU S&T Cooperation Promotion Office (CECO), to discuss plans for the promotion for FP7 in China, including ERC grants.

International Conference on BioEconomy

At the invitation of the Chinese Ministry of Science and Technology (MOST), Ms. Jessica Mitchell, S&T Attaché attended the International Conference on Bio-economy on 27 June in

Tianjin and represented the EC as co-sponsor and gave a presentation on the EU bio-economy policies and indications for the FP7 calls this year for food, agriculture, fisheries and biotechnology to an audience of academics, researchers and business representatives. The High-level forum organised by MoST received top-level support from the participation of State Counsellor Liu Yandong and widespread media coverage.

POLICIES AND PAPERS

China allocates 818 mln yuan to commercialize research findings in 2011

China has allocated 818 million yuan (about 126.4 million U.S. dollars) to promote the application of research results in the commercial sector in 2011, according to the Ministry of Finance. The move aims to accelerate the transfer of scientific and technological achievements into productivity, promote corporate technical innovation and speed up economic reform, the ministry said in an online statement. The money from the fund will primarily be directed toward projects in the key mechanical components sector and low carbon, environmentally friendly industries this year, the statement said. The average subsidy for each project is 7.71 million yuan in 2011, up 20 percent from last year. The maximum subsidy for a single project can amount to 45 million yuan, it said. The ministry will make public each project before approving the funding, it added. (Source: [Xinhua net](#))

Twelve Billion RMB for NSFC Programs in 2011

In 2011, the Central Government will continue to make a remarkable increase funding for the National Natural Science Fund. The planned amount of funding reaches 12 billion RMB with an increase of over 16% of that of the last year. At the same time, some adjustments will be made to NSFC funding portfolio, e.g. there will be an extension of funding duration and an increase of average funding per project. NSFC President Chen said that NSFC will adjust its funding amount and duration during the Twelfth Five-Year Plan in accordance with the principle of “attaching higher priority to the most fundamental scientific disciplines, research frontiers and fostering talents”. (Further details in source: [NSFC](#))

Chinese Academy of Sciences Annual Report 2011

The Chinese Academy of Sciences (CAS) published its annual report 2011 on its website. Total expenditure by CAS research institutes for scientific research and experimental development activities reached RMB 223.61 bn yuan (36.1%, 56.8% and 7.1% for basic research, applied research and experimental development respectively). An important milestone for CAS in 2010 was the launch of the "Innovation 2020" Programme and its trial implementation at the pilot phase. The "Innovation 2020" sets out CAS strategic priority research projects, specifies three types of research centres and five regional innovation clusters. In the trial implementation of "Innovation 2020" in 2010, the *National Centre for Mathematics and Interdisciplinary Sciences* was set up. Other priorities include *Future Advanced Nuclear Fission Energy*, *Space Science*, *Study of Stem-cell and Regenerative Medicine and Certification*, *Relevant Issues of Carbon Budget in Response to Climate Change*, *Study of New Information Technology for Sensing China*, *Key Technology and Demonstration for Research, Development and Application of Deep Resource Exploration Technology*. (Source: [CAS Annual Report 2011](#))

China's First IP Exchange Inaugurated

Tianjin Binhai International Intellectual Property Exchange, China's first intellectual property exchange, was inaugurated on June 11, 2011. The Exchange was established to marry S&T innovation resources and financial resources, with intellectual property rights as a major player and market needs the guidance. It will work to enrich the varieties of intellectual property transaction products and transaction modes, making itself a platform to connect inventors' technologies to venture capital, facilitating the spin-off and secondary development of proprietary technologies. (Source: [MOST](#))

Industrial Innovation Advocated

An MOU for promoting technology innovations at the state enterprises that are under the direct supervision of the central government was signed. The Memorandum has defined 5 main missions revolving around the innovation capacity building of major state enterprises and the establishment of an industrial innovation R&D system. (Further details in source: [MOST](#))

China's import strategy should prioritize technology over capital: Vice Premier

China should import more "advanced technology, managerial experience, high-end talents and international brands" to improve the quality of the country's industrial development, Vice Premier Wang Qishan said during the opening session of a four-day plenary meeting of the Standing Committee of the National Committee of the 11th Chinese People's Political Consultative Conference (CPPCC), China's political advisory body. (Source: [Xinhua net](#))

'Discriminatory' govt procurement rules scrapped

Three key rules on indigenous innovation for government procurement, which have come under fire from foreign companies for being discriminatory, were scrapped from July 1. Experts said the move, praised by foreign firms for allowing them better access to the domestic market, shows that the government is determined to continue to open to the outside world and treat Chinese and foreign companies equally. (Further details in source: [China Daily](#))

Senior official calls for enhancing innovation, cultural service

A senior Chinese official has called on the country's companies to enhance their innovative capability so as to provide support for "sound and rapid" economic and social development. "Improving innovative capability is the core of our national development strategies and a fundamental way to transform the country's economic growth pattern," said Li Changchun, a Standing Committee member of the Political Bureau of the Communist Party of China (CPC) Central Committee, during a visit to east China's Shandong Province. While visiting local companies, Li encouraged them to increase their efforts in research and development in order to produce more high-tech products with independent intellectual property rights. (Further details in source: [Xinhua net](#))

OECD to publish new books in China

The Organization for Economic Co-operation and Development (OECD) is to publish in China 35 books, among which Taxation, Innovation and the Environment and Perspectives on Global Development 2010 Shifting Wealth will be on market in July. This is so far the largest scale of OECD's publication in China, according to an executive with Publishing House of Chinese Academy of Governance (PHCAG) based in Beijing. PHCAG collaborates with Central

Compilation & Translation Press to translate the OECD books into Chinese, ranging from economic surveys to health fact books. (Further details in source: [China Daily](#))

VOICES AND OPINIONS

Foreign scientists praise China's investment in science

China is attempting to lure more foreign scientists to work in the country, while at the same time more foreign scientists seem willing to work here. "The facilities are excellent and the openness is wonderful," said Professor Theo Beckers from Tilburg University of the Netherlands. Bai Chunli, president of the CAS, said that the academy considered international collaboration an inseparable part of its research and development. Elizabeth Sawyer from the United Kingdom is working at the Institute of Biophysics under the CAS. She said China's massive economic growth and scientific output had made it "un-missable" for scientists who want to be at the research forefront. Since 2009, the CAS has strengthened projects aiming to promote exchanges between Chinese and foreign scientists, with a view of attracting foreigners to work in China. In the following two years, the CAS approved the applications of 477 senior foreign scientists and 179 young fellows to come to China for research collaboration. (Further details in source: [Xinhuanet](#))

China Aims to Draw More EU Scientists

China's efforts to improve its achievements in science is propelling other nations to further enhance their scientific ties with the nation. Though China and the European Union (EU) began scientific cooperation some time back, till now the balance was loaded heavily in favor of the EU with more and more Chinese scientists studying and undertaking research activities in the EU. Very few Europeans actually come to China for research activities. But the changing global paradigm is likely to swing the pendulum in China's favor, as the nation plans to invest nearly 2.5 percent of its gross domestic product (GDP) on science and technology by 2020. "Europe understands the huge potential for scientific research and is keen on working closely with nations that are important in the area of science and technology. In this regard there has been an increase in the level of research in China, as it slowly improves in standard. The EU now feels more than ever that it should further bolster its connections with China," says Clemens Smolders, lead expert of the European Union's Science & Technology Fellowship Program in China (STF China). At the same time China will also work actively to create more opportunities to attract scientific talents from overseas, including Europe. The Chinese Academy of Sciences (CAS) has already launched two programs - a visiting professorship for International Scientists and the Fellowship for Young International Scientists - that aim to attract foreign talent. "Foreign scientists are convinced about our research standards and believe in the great potential that we offer in some fields, especially the excellent research facilities," says Lu Yonglong, director of the Bureau of International Cooperation at the CAS. (Further details in source: [China Daily](#))

Rich in papers, China still less innovative

An evidence often referred to describe China's advances in research power is the number of research papers. Science Watch ranked China the fourth, following the United States, Japan and Germany, in producing 719,971 research papers on Science Citation Index journals from 2000 to 2010. But in terms of average citations per paper, a benchmark for merit of research papers, China was nowhere among the world's top 20, with 5.87 which was a far cry from that of the most innovative countries, Switzerland with 16.62, the United States with 15.77 and the Netherlands with 15.37. What China had scored was close to 6.28 of Brazil and 5.62 of India.

Even for the lower-cited papers first authored by Chinese researchers, most citations were done by home peers and, in many cases, were self citations. Statistics also showed one quarter of the total Chinese-first authored research papers in the past decade were in collaboration with international colleagues, mostly American scientists. For most research papers, gaining monetary bonus would be priority for their writers. The biggest chunk of all the published papers by Chinese writers were less innovative and might not be based for triggering new thoughts or key technological know-how, which was somewhat testified by patenting. The U.S. Patent and Trademark Office in 2008 granted 49 percent of patents to U.S. applicants, 22 percent to Japanese, 14 percent to Europeans. Chinese companies and individuals were granted less than one percent of all U.S. patents in the same year. That might help explain how less competitive China is in science and technology. (Further details in source: [Xinhuanet](#))

Premier Wen's speech at Chinese-German Forum for Economic and Technological Cooperation

Chinese Premier Wen Jiabao delivered a speech entitled "Work in Partnership for Common Development" at the Sixth Chinese-German Forum for Economic and Technological Cooperation. Wen pointed out that with over 15,000 contracts for technology transfer to China worth over 50 billion U.S. dollars, Germany is the largest source of China's technology import from Europe. He also expressed the wish to strengthen technological exchanges and cooperation, mentioning the fact that the technological strengths of German companies, once combined with China's strengths in labor resources and market, will both help promote China's economic structural adjustment and industrial upgrading and make German companies and products more competitive in the world market. China, said Wen, is ready to enhance technological cooperation with Germany in advanced equipment manufacturing, transportation, energy, petrochemicals and fine chemicals, new materials, bio-medicine and aerospace. China is also willing to expand cooperation with Germany on new energy, energy conservation and environmental protection. (Further details in source: [People](#))

Premier Wen Jia Bao's speech at the Royal Society

Science and technology hold the key to China's economic prosperity and sustainable development. The Chinese government has adopted the National Medium-and Long-Term Program for Science and Technology Development. Government R&D investment has reached nearly 100 billion U.S. dollars in the past five years, growing at an average annual rate of 22.7 percent. Under the 12th Five-Year Plan which starts this year, R&D funding as a percentage of China's GDP will rise to 2.2 percent from the current 1.75 percent. At the same time, we will accelerate the development of strategic emerging industries, with priority given to energy conservation, environmental protection, new generation of information technology, biotechnology, advanced equipment manufacturing, new energy, new materials and new energy powered automobile. Globally, science and technology are also crucial for overcoming the financial crisis and ensuring stable, balanced and sustainable economic development. The world is seeing the advent of a new revolution in science and technology and a new industrial revolution. Exciting breakthroughs will be made in many fields. This new revolution in science and technology will deepen our understanding of the universe, nature and ourselves as human beings. It will open up new frontiers, unleash productive forces, create new social demand and exert a profound impact on mode of production, way of life and way of thinking. We should create a better political environment and a freer academic atmosphere in which people can pursue truth, exercise reasoning and respect science, in which the mysteries of nature, the laws governing society and the true meaning of life can be fully explored. The spirit of independence and freedom in thinking is particularly important in academic studies and research. (Further details in source: [People](#))

PEOPLE OF THE MONTH

First 'basic law' for university approved

The South University of Science and Technology of China has received local government approval for its own regulation of university management, which is considered the first "basic law" for a Chinese university. A host of regulations, which have been approved by the Shenzhen government, will be enacted from July 1. The regulations said the university will set up a board of directors, who will be the policymakers for the university. The board will have the right to appoint the president and vice-president, examine and approve the university's regulations, financial reports and development plan. The president's term will be five years and he or she can be reappointed with the approval of the board of directors. Central government or local authorities usually appoint university presidents in China. The regulations also stipulate that the university will follow the principle of academic freedom and entitle the professors to govern academic issues. In most universities in China, administrative departments make almost all major decisions on university management. South University of Science and Technology of China, which opened in 2009 with sponsorship from the Shenzhen government, is widely recognized as the trailblazer of China's education reforms. (Further details in source: [China Daily](#))

CAS Academician HONG Chaosheng Receives Samuel C. Collins Award

Academician HONG Chaosheng from the Chinese Academy of Sciences (CAS) received the Samuel C. Collins Award at the Cryogenic Engineering Conference/International Cryogenic Materials Conference (CEC/ICMC 2011) held in Spokane, Washington on June 13-17. It is the first time that the award has been issued to a Chinese scientist. Set in 1965, the Samuel C. Collins Award is awarded to an individual who has given outstandingly of himself/herself in the identification and solution of cryogenic engineering problems and has subsequently demonstrated their concern for the cryogenic community with their dedicated and unselfish professional service and leadership to this community. So far, it has given rise to 15 recipients. HONG was in succession deputy director and the director of office in the Institute of Physics, the director of cryogenic laboratory, professor in Physics at Tsinghua university, Peking university and the university of science and technology, the vice president of Physical society and Chinese Association of Refrigeration, the vice president of International Cryogenic Engineering Committee, etc. Now Hong is the honorary director of technology commission in Technical Institute of Physics and Chemistry of CAS. (Further details in source: [CAS](#))

SCIENTIFIC ACTIVITIES

Health

China establishes national gene bank in Shenzhen

China established its first national gene bank in south China's city of Shenzhen with the support of the Beijing Genomics Institute (BGI). With the establishment of the National Gene Bank in Shenzhen, China will be able to better protect, research and utilize its precious genetic resources, boosting the genetics industry and safeguarding the country's genetic information, said Qi

Chengyuan, head of the high-tech industry department of the National Development and Reform Committee (NDRC). (Further details in source: [People](#))

Chinese, British firms to jointly develop new drugs in coming decade

Chinese and British pharmaceutical companies are planning to jointly develop 30 new drugs in the coming decade, according to a partnership proposal. The announcement was made by David Wilkinson, who represents Britain's National Institute for Medical Research, at the China Bioindustry Convention 2011 (BioChina) in the southern boom city of Shenzhen. (Further details in source: [Xinhua net](#))

Researchers discover genetic mutation boosting hair growth

A team of U.S. and Chinese researchers have discovered a chromosomal mutation responsible for a very rare condition in which people grow excess hair all over their bodies. The finding ultimately will lead to new treatments for this and less severe forms of excessive hair growth as well as baldness, said researchers at the Keck School of Medicine of the University of Southern California (USC). The initial discovery of the mutation came from a lab at the Peking Union Medical College. (Further details in source: [Xinhuanet](#))

Cell Cycle Suspension: a Novel Process Lurking in G2 Arrest

The researchers in Institute of Modern Physics, Chinese Academy of Sciences (IMP) engage in cell radiosensitivity together with Juntendo University and National Institute of Radiological Sciences (NIRS) in Japan and report a new phenomenon on cell cycle suspension for the first time. This is the first report on cell cycle suspension and the researchers present a de novo mechanism to cellular radiosensitivity. Further clarification of the mechanism underlying cell cycle suspension is believed to be of significance to tumor radiosensitization or even direct tumor control. (Further details in source: [CAS](#))

Brain Cells Can Regrow

Fudan University released a finding saying its scientists have found that there are nerve stem cells and newborn neurons in adult monkeys' and human brain, which hints the possible repairing of damaged brain cells. A study team, led by Prof. YANG Zhengang at the University's Brain School, has confirmed the existence of newborn neurons derived from the stem cells in adult macaque's brain, based on three-year study. (Further details in source: [MOST](#))

BIG–UiO Joint Laboratory Establishes

The BIG–UiO Joint Laboratory of Genome Structure and Stability was officially inaugurated in Beijing Institute of Genomics on June 6. The joint laboratory is jointly established by Beijing Institute of Genomics (BIG), Chinese Academy of Sciences and the University of Oslo (UiO), Norway. The laboratory will take advantages of both sides to make more achievements on the research of genome structure and stability of major diseases. (Further details in source: [CAS](#))

China, France Strengthen Cooperation on Prevention against Emerging Infectious Diseases

The Chinese Academy of Sciences (CAS) starts a Sino-France bio-safety laboratory “Zhengdian Laboratory” in Wuhan on June 30, marking a new phase of collaboration between China and France on prevention against emerging infectious diseases. The laboratory will serve as a new

workbench for China and France to carry our joint research projects, advance cooperation on prevention against emerging infectious diseases. (Further details in source: [CAS](#))

China-US Joint Liver Center

A ceremony was jointly staged by Zhejiang University School of Medicine No. 1 Hospital and the UCLA Medical Center on June 2 to undersign a cooperation accord, and put a joint liver center into operation. This is the first time that the UCLA Medical Center selected a global partner. (Further details in source: [MOST](#))

Food, agriculture and fisheries, biotechnology

Nation placing priority on biotechnology

China will spend 2 trillion yuan (\$308.5 billion) on science and technology, making biotechnology a major priority, in the next five years, Chinese State Councilor Liu Yandong said at the ongoing 2011 International Conference for Bio-economy (Bio Eco 2011). The Chinese Government will work to further combine biotechnology with economic development and with improving ordinary people's livelihood, Liu said. "The development priorities of the 12th Five-Year Plan (2011-2015) - biopharmacy, bio-engineering, bio-agriculture and biomanufacturing - will bring benefits to Chinese people." In the next five years, China will further use biotechnology to prevent disasters or alleviate the harm caused by them, to protect the environment, to employ "green" construction methods and to control climate change. Meanwhile, the latest innovations in biotechnology should be relied on to guarantee domestic standards are met for nutrition, hygiene, healthcare, food and drug safety and disease diagnosis and prevention, Liu stressed. (Further details in source: [China.org](#))

National agricultural lab to be established in east China city

The National Development and Reform Commission has approved the establishment of a national agricultural laboratory in Nanchang, capital of east China's Jiangxi Province, as part of the country's new approach to food safety. The National Paddy Engineering Laboratory (Nanchang) is intended to enhance the production capabilities of the country's rice paddies. (Further details in source: [Xinhuanet](#))

China establishes national lab for super grain

China established a national laboratory for hybrid rice research in central Hunan Province, aiming to cultivate rice that will bring yields of 15 tonnes per hectare. The lab was established with the support of Hunan Hybrid Rice Research Center and Wuhan University. Yuan Longping, Zhu Yingguo and Xie Hua'an, top scientists in cultivating hybrid grains, will lead researches in the lab. (Further details in source: [Xinhua net](#))

Novel Rice Planting Techniques

A team, led by Prof. WANG Chun at Heilongjiang Bayi Agriculture University, has developed a mechanized technique to grow rice using straw as the medium tray. The innovative technique makes higher rice yield for a large area possible. (Further details in source: [MOST](#))

Researcher Finds High-biomass Hyperaccumulator for Phytoremediation of Cd Contaminated Soil

Dr. LI Ningyu, led by Prof. LI Zhian in research group of Soil Science and Ecological Engineering, South China Botanical Garden, CAS, conducted a study to assess the phytoextraction potential for Cd of three amaranth cultivars (*Amaranthus hypochondriacus* L. Cvs. K112, R104 and K472), and the effect of application of N, NP and NPK fertilizer on Cd uptake of the three cultivars from soil contaminated with 5 mg kg⁻¹ Cd. The results show that three amaranth cultivars grew well, and accumulating Cd in their harvestable above-ground tissues ranging from 95.1 to 179 mg kg⁻¹, with BCFs of 17.7 - 29.7 and TF of 1.0 -2.0. Application of N, NP or NPK fertilizers usually increased foliar Cd content but decreased Cd content in stem and root. (Further details in source: [CAS](#))

Chinese cows churn out 'human breast milk'

Chinese scientists have produced a herd of genetically modified cows that make milk that could substitute for human breast milk -- a possible alternative to formula. Researchers at the State Key Laboratory of Agrobiotechnology of the China Agricultural University introduced human genetic coding into the DNA of Holstein dairy cow embryos, then transferred the embryos into cow surrogates. (Further details in source: [China Daily](#))

"Space lotus" bloom in wetland park, China's Chongqing



Photo taken on June 25, 2011, shows a "space lotus" flowering a wetland park in Dazu County, southwest China's Chongqing Municipality. The "space lotus" were cultivated from the lotus seeds carried back by a recoverable satellite. The lotus plants of various breeds are in full bloom recently, attracting numerous visitors. (Source: [Xinhua net](#))

Survey of Wild Pandas to Lead to National Census

The forestry administration in Southwest China's Sichuan province launched a wild panda population survey, which is the prelude to a new nationwide census of this endangered mammal. The census-takers are zoologists from the Chinese Academy of Sciences, panda experts from the country's 30 nature reserves and officials from the forestry departments in Sichuan, Shaanxi and Gansu provinces. There were 1,596 giant pandas living in China's mountain areas, according to the last survey conducted almost 10 years ago by the State Forestry Administration and World Wide Fund for Nature (WWF). Official statistics show that the country's 62 nature reserves are home to 71 percent of China's panda population. (Further details in source: [CAS](#))

China releases two more captive-bred giant pandas into the wild

Researchers at a giant panda breeding base in southwest China's Sichuan Province released two pregnant giant pandas into a semi-wild environment near the base, as part of the base's efforts to help more captive-bred pandas adapt to the wild. The pandas were the second and third captive-bred pregnant pandas to be released into the semi-wild training ground near the base. China's

plan to save its endangered pandas by releasing captive-bred pandas back into the wild began in 2003. (Further details in source: [Global Times](#))

Information and communication technologies

IOT sees vast potential in China's agriculture

China's development of the Internet of Things (IOT) fosters huge potential for promoting agricultural management, said an expert with the Chinese Academy of Engineering (CAE) Wang Maohua. The IOT could be first adopted in areas such as important land reclamation projects, supervision over basic farmland and production resources, farmland environment, as well as crop and aquaculture production. China's Ministry of Industry and Information Technology will increase efforts to make breakthroughs in the core technologies of IOT, and boost their research, development, application and industrialization. (Further details in source: [People](#))

China's software industry faces tectonic shift

The golden age for the software and outsourcing industry is over, and Chinese companies must overcome a number of hurdles as they face a major shift as the industry goes from selling software products to selling services. IT heavyweights made this call during a just concluded international software conference in the northeast port city of Dalian, Liaoning Province. (Further details in source: [Global Times](#))

China's Huawei storms into tablet PC market

The Huawei Technologies unveiled a 7-inch Android-based tablet computer in Singapore, throwing itself into a market competition with Apple and Samsung. The Chinese top technology company said it is developing a larger 10-inch tablet PC, too. And, Victor Xu, the chief market officer of Huawei Device, said that his company plans to be among the top global five handset producers within three years, a market that is now dominated by Nokia, Apple and Samsung. (Further details in source: [People](#))

The virtualization of a nation, cloud computing in China takes hold

Cloud computing is capturing the imagination of business executives worldwide as being a less expensive and more effective way of managing data, and China is investing big in the technology as the government transforms the economy from relying heavily on manufacturing to delivering quality services. Last year the National Development and Reform Commission (NDRC) and Ministry of Industry and Information Technology (MIIT) named Beijing, Shanghai, Shenzhen, Hangzhou and Wuxi as the five pilot cities for cloud computing innovation and development. But the setting up of cloud-computing zones is by no means restricted to these places. In the sprawling southwestern municipality of Chongqing, with more than 30 million residents, a 10 kilometer so called "special cloud zone" with 1 billion yuan earmarked for the first of three phases, is being built and will be directly connected to the outside Internet. (Further details in source: [Xinhua net](#))

Cloud transcends Firewall



The construction of China's first international cloud computing hub is progressing apace in Chongqing. "We have completed the outline of the International Cloud Computing Special Zone in the city's Liangjiang New Area. The first phase of construction is set to be completed in three years," said an official surnamed Li with the Chongqing Economic and Information Technology Commission. (Further details in source: [Global Times](#))

China has 714,000 3G mobile phone towers

China had about 714,000 3G mobile phone towers by the end of May this year, the Ministry of Industry and Information Technology (MIIT) said. Ownership of the 3G towers is almost equally divided among the country's three leading mobile phone services providers. The number of Chinese 3G users topped 73.76 million by the end of May. (Source: [Global Times](#))

Nanosciences, Nanotechnologies, Materials and new Production Technologies

Asia Leads Research Output in Materials Science, According to Study from Thomson Reuters

The volume of research papers published in the field of materials science is currently being driven by Asia and in particular China, which has overtaken the U.S. and Japan to become the largest single-country producer in the world, according to a study released today by Thomson Reuters. The study, Global Research Report: Materials Science and Technology, uses data from Thomson Reuters Web of Knowledge™ to examine the most productive and influential countries, research institutes and universities, and topics in the field of materials science and technology – a core area of research for many economies due to its potential contributions to manufacturing processes and innovative products. (Further details in source: [Thomson Reuters](#)).

Chinese Academy of Sciences investigates improvements to silicon manufacturing

Researchers at the Chinese Academy of Sciences' Institute of Process Engineering (CAS-IPE) announced that they have used the world's fastest supercomputer to run a molecular simulation to examine potential improvements in the production of crystalline silicon. "Computer simulations are critical to the study of new materials and production methods as it can reveal far more details than experimental measurements, at much less cost," said CAS-IPE Research Associate Dr. Wenlai Huang. (Further details in source: [CAS](#))

First Inflatable Vacuum Total Dose Radiation Evaluation System of Cryogenic Temperature in China Developed by IMECAS Researchers

After two years continuous effort, the first Inflatable vacuum total dose radiation evaluation system of cryogenic temperature in china has been successfully developed by researchers from the Silicon Device and Integration Technology Department (Department No.1) of IMECAS. The ultimate vacuum pressure of this cryogenic testing system is lower than 10⁻⁷ Pa, 12-hours static leakage pressure is under 0.1Pa, inflation ability pressure is 1Pa-1MPa, continuous experiment time at liquid nitrogen temperature is above 5 hours. (Further details in source: [CAS](#))

Fabrication and Electrochemical Properties of Nanostructure TiN

Researchers at the State Key Laboratory of Solid Lubrication of the Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (LICP), have successfully prepared titanium nitride (TiN) nanorod and nanofibers using a facile combination of electrospinning followed by thermolysis under different atmospheres. They have also investigated the electrochemical behaviors of the carbon materials, including graphene, carbon nanotubes and nanofibers. These materials have showed good electrochemical properties and displayed potential applications in supercapacitors. (Further details in source: [CAS](#))

World Record for Molecular Simulation

Researchers at CAS Institute of Process Engineering have recently set a world record for molecular simulation when working on molecular dynamics modeling at Tianhe-1 supercomputer, the fastest computing system in the world. With the help of 7,168 NVIDIA GPUs in the system, researchers launched a gigantic molecular dynamics modeling project, in an attempt to understand the micro-behavior of crystalline silicon, a material commonly used in the solar cell and semiconductor industry. (Further details in source: [MOST](#))

Fiber-Laser Coherent Synthesis at Kilowatt Level

National University of Defense Technology announced on June 14 that it has rolled out a prototype fiber-laser coherent synthetic system at the kilowatt level, the first of its kind in the country, with an output reaching 1.5 kW. Prof. LIU Zejin and coworkers developed two fiber-laser coherent synthesis phase control techniques based on stochastic parallel gradient descent and single-frequency jittering. (Further details in source: [MOST](#))

Measuring the Forces of Interactions between Quantum Dots and Living Cells

Ultrasmall particles are poised to become central to biomedical applications such as drug delivery and photodynamic therapies. Semiconductor nanoparticles called quantum dots (QDs) are particularly promising for biological imaging, having size-tunable light emission and excellent photostability. The development of such clinical applications hinges on understanding how such nanoparticles interact with and penetrate living cells. A research team led by Hongda Wang from the Chinese Academy of Sciences in Changchun, China, has now developed a method to measure these interaction forces using atomic force microscopy (AFM) ("Recording force events of single quantum-dot endocytosis"). (Further details in source: [CAS](#))

High Quality Iron-Selenide Superconductor Film

XUE Qikun and CHEN Xi of Tsinghua University, and MA Xucun of CAS Institute of Physics have confirmed the electron-pairing mechanism in an iron selenide (FeSe) based superconductor, with the help of novel material preparation techniques. The finding laid a solid ground for understanding the superconducting mechanism of iron based superconductors. (Further details in source: [MOST](#))

Novel Blood Substitute

JING Xiabin and coworkers at CAS Changchun Institute of Applied Chemistry have landed an important progress in studying the role played by biodegradable polymer vesicles in hemoglobin loading, with a patent grant. Researchers made biodegradable polymer the carrier of hemoglobin,

and wrapped up hemoglobin using poly-lysine and alanine diblock copolymer of polystyrene-peptide vesicles, in an attempt to make the hemoglobin structure closer to that of human red blood cells. The new carrier is able to meet the basic requirements for being a blood substitute, including oxygen transfer, biocompatibility, safety, and stability. (Further details in source: [MOST](#))

LICP Researchers Get Patent for High Polymer Material Chemical Sand-fixing Agent Preparation Method

Researchers at the State Key Laboratory for Oxo Synthesis and Selective Oxidation of the Lanzhou Institute of Chemical Physics of the Chinese Academy of Sciences have received a national invention patent for the preparation method of a high polymer material chemical sand-fixing agent on May 18. The method could solve the pollution problem of the paper-making effluent to the environment, and its cost is low. (Further details in source: [CAS](#))

AIXTRON - SINANO MOCVD Training Center Established

Suzhou Institute of Nano-tech & Nano-bionics, Chinese Academy of Sciences (SINANO) signed an agreement on June 22 in Suzhou with AIXTRON to co-establish the AIXTRON - SINANO MOCVD Training Center agreement. AIXTRON will provide one CRIUS II MOCVD system and one AIXG5HT MOCVD system at SINANO's facility to train its customers and potential customers' engineers on the usage of MOCVD systems. SINANO's process and maintenance engineers will also be trained by AIXTRON for the system operations. Based on this cooperation, the two sides prepare to establish a MOCVD R&D center, with a view to fundamentally improve China's MOCVD epitaxy technology and MOCVD equipment manufacturing capacity. (Further details in source: [CAS](#))

Significant Progress in Water Photochemistry Research

Water molecule is one of the most important molecules in the Universe. Photochemistry of the water molecule plays a crucial role in atmospheric chemistry, combustion process and interstellar chemistry. It is a benchmark system for experimental and theoretical studies of unimolecular reactions. The experimental group led by Dr. Xueming Yang, supported by the National Science Foundation of China, conducted its investigation on the photochemistry of water in the gas phase at the full quantum state resolved level, by using of the high resolution H-atom Rydberg tagging technique, in combination with a tunable vacuum ultraviolet (VUV) light source indigenously developed in Dr. Yang's laboratory. In collaborations with Prof. Richard Dixon, a fellow of Royal Society in UK, at the University of Bristol, they have made significant progress in the study of water photochemistry in the entire VUV region. (Further details in source: [NSFC](#))

Structural signature in amorphous alloy formation and plastic deformation

Supported by the Key Project and the Fund for Creative Research Groups of the National Natural Science Foundation of China, Prof. WANG Weihua and his group from Institute of Physics, CAS, together with their cooperative partner Prof. LI Maozhi from Renmin University of China, adopted molecular dynamics simulations to carry out their research on structural and dynamical features for the glass forming ability (GFA) in a model Cu_xZr_{100-x} metallic glass-forming systems. (Further details in source: [NSFC](#))

SICCAS and Corning Open Joint Research Facility

Shanghai Institute of Ceramics, Chinese Academy of Sciences (SICCAS) and Corning Incorporated announced the opening of a joint research facility. The facility will provide Corning with a research platform to gain access to complementary expertise of SICCAS, China's leading research institute in the fields of materials science and technology. Through research in thermoelectric technologies, the SICCAS-Corning facility is exploring new high-performance materials that can aid in the electrification of vehicles, enabling better vehicle fuel efficiency and lower vehicle emissions. (Further details in source: [CAS](#))

3000m Deep Water Pipe Laying Crane Vessel

Offshore Oil 201, a deep water (3000m) pipe laying crane vessel developed by Rongsheng Heavy Duty with DP3-class full-electric propulsion, dynamic positioning, and 4,000-ton heavy-duty lifting capabilities, passed the approval check on June 16, 2011. Equipped with an array of state-of-the-art technologies and equipment, including full-electric propulsion, all-electric variable frequency drive, DP3 dynamic positioning, S-type deep-water two-node pipe laying system, 4,000-ton heavy duty crane, and a VMS system, the new vessel can be employed to work on sea floor pipe laying operations across all the oceans but the Arctic Ocean. (Further details in source: [MOST](#))

International Training Program on Digital Textile Technology Launched

The International Training Program on Digital Textile Technology and Application was launched in Shanghai on May 21. 19 trainees from nine countries participated in the program. The class aimed to systematically brief trainees on the development and the status quo of digital textile and apparel software in China, and promote cooperation and exchange between China and the nine countries in the application of digital textile technology. (Source: [MOST](#))

Environment (including climate change)

Draft tax regulation favors green vehicles

The State Council began soliciting public opinions on a draft regulation for the implementation of the Vehicle and Vessel Tax Law, which will exempt electric cars, fuel-cell vehicles and hybrid vehicles from taxation. (Further details in source: [China Daily](#))

Comprehensive scheme for carbon cut proposed

A comprehensive scheme for energy saving and emission reduction during the National 12th Five-Year Plan has been submitted to the State Council for approval. The plan indicates that energy-saving goals should be binding by law to avoid rolling blackouts and any future waste of energy resources. (Source: [China Daily](#))

China pledges its urbanization drive to be low-carbon

China will push for the use of clean power and energy-saving technologies in its massive urbanization drive across the country over the next five years, said Qian Zhimin, deputy director with the National Energy Administration at a low-carbon forum sponsored by the Asia-Pacific Economic Cooperation (APEC) in Tianjin. China plans to raise urbanization rate to 52 percent by 2015 and 65 percent by 2030, according to the government's 12th Five-Year-Plan (2011-2015). Technologies such as smart grids, solar power utilities, and clean energy-powered vehicles

will be promoted in city planning, and the development of public transport and rail transport will be prioritized. (Further details in source: [People](#))

China to build hi-tech eco-district in Shaanxi

China released a general plan to build Xi'an and Xianyang into a high-tech eco-district, in northwestern China's Shaanxi province. The new area will be mainly focused on developing the state's strategic emerging industry, environmental-friendly and low carbon industry, high-end manufacturing industry and modern service industry in the future. (Further details in source: [China Daily](#))

China urges developed nations to help developing countries tackle climate change

A senior Chinese official urged developed nations to provide more technology and financial support for developing countries to jointly address climate change issues. "Developed countries should fulfill their commitment to provide financial support and technological transfers in order to help developing nations tackle climate change and promote low-carbon development," said Xie Zhenhua, deputy director of the National Development and Reform Commission. (Further details in source: [Xinhua net](#))

The Arctic Ocean Acts As A Source of Mercury to the Atmosphere during Summer

The Arctic is no longer a pristine environment, free of anthropogenic contaminants such as persistent organic substances, heavy metals or radionuclides. Concerning the neurotoxic element mercury (Hg), it has been elucidated that high levels in the Arctic environment is related to a rapid, near-complete depletion of Hg⁰ (MDE) in the marine boundary-layer occurring episodically during the Polar spring. After joining Prof. FENG Xinbin's group in Institute of Geochemistry, Chinese Academy of Science (IGCAS), Dr. Jonas Sommar has been involved in a series of publications (Andersson et al., 2011; Andersson et al., 2008c; Sommar et al., 2010) based on samples collected during a nearly three month long expedition to the high Arctic during the summer of 2005. (Further details in source: [CAS](#))

Energy

China tops world's renewable energy investment: study

China is now the world leader in renewable energy investment, as developing countries overtook developed ones for the first time in the value of major "green" projects in 2010, according to a report "Global Trends in Renewable Energy Investment 2011." The report was based on a study jointly conducted by the Frankfurt School of Finance and Management, the United Nations Environment Program (UNEP) and the news service Bloomberg New Energy Finance. China, an emerging nation determined to change its growth pattern in recent years, leads the list of world's major renewable energy investors. (Further details in source: [Xinhua net](#))

China calls for strengthened global nuclear safety standards

China called on the international community to take urgent measures to address nuclear safety. Wang Yiren, head of China Atomic Energy Authority, made the appeal at a ministerial conference on nuclear safety hosted by the International Atomic Energy Agency (IAEA) in Vienna. "It is an important and urgent mission before us to draw lessons from Japan's Fukushima Daiichi nuclear accident and strengthen international cooperation in nuclear safety to

jointly promote safe development of nuclear energy," Wang told the conference. (Further details in source: [People](#))

China to suspend new nuclear plant approvals

China is drafting a nuclear safety plan and before its approval the Chinese government will suspend endorsement for any new nuclear power plants, said Li Ganjie, deputy minister of the Ministry of Environmental Protection. (Further details in source: [China Daily](#))

UK official: China's nuclear know-how can be exported

The Chinese nuclear industry is developing rapidly and the experience it is gaining provides Chinese companies opportunities to invest in the United Kingdom, a UK official said. The major area of opportunity is for companies that manufacture components for the AP-1000 - the third generation technology of Westinghouse - or Areva reactors, said Tim Stone, expert chair of the nuclear development office under the UK's Department of Energy & Climate Change. (Further details in source: [China Daily](#))

Energy-saving mission accomplished in past 5 yrs

A joint statement with the National Bureau of Statistics, the National Development and Reform Commission (NDRC) said the energy consumption per unit of gross domestic product (GDP) had dropped by 19.1 percent during the 11th Five-year Plan period (2006-2010). According to the statement, the economy expanded by an average annual growth rate of 11.2 percent over the past five years, but its energy consumption grew by only 6.6 percent annually on average. (Further details in source: [China Daily](#))

Asia's first third-party wind energy technology center opens in north China

Asia's first third-party wind energy technology center started operations in north China's port city of Tianjin, which specializes in testing fan blades. The wind energy technology center belongs to the SGS-CSTC Standards Technical services Co., Ltd. -- a joint venture of government-backed China Standard Technology Development Corporation and Swiss-based SGS Group. It is located in Tianjin Binhai New Area, home to about 30 wind energy manufacturers from home and abroad. (Further details in source: [Global Times](#))

Researchers seek technology to convert carbon dioxide into energy

Researchers from Singapore and China are conducting a research aimed at using different technologies to completely capture and convert carbon dioxide in industrial emissions into energy. The project, supported by the National Research Foundation (NSF) of Singapore, will make use of sunlight as well as photochemical and photosynthetic processes. The researchers involved in the five-year project are from China's Peking University and Singapore's National University of Singapore and the Nanyang Technological University. (Further details in source: [Global Times](#))

Vanadium Battery's 10,000 Cycling Operations

ZHANG Huamin and coworkers at CAS Dalian Institute of Chemical Physics have developed a 2-kilowatt vanadium energy storage system able to perform 10,000 charge/discharge operations, without significant energy efficiency decay. The development makes the Chinese made system

the second of its kind able to hit the 10,000 charge/discharge operations in the world, after the one produced by Japan's Sumitomo Corporation. (Further details in source: [MOST](#))

Largest Silicon Solar Cell Project in China

A silicon thin film solar cell project, the largest of its kind in the country invested and built by Han Energy, was put into operation on June 15, 2011 at the Chengdu Economic Development Zone in Shuangliu. The thin film solar cell is produced with the help of second-generation solar cell technology, enjoying numerous merits, including pollution free, low cost, enhanced average power generation, and low-light response, compared with the first generation crystalline silicon solar cell technology. (Further details in source: [MOST](#))

China to boost offshore wind power to 30 gigawatts by 2020

In the next five years, China will boost its offshore wind power installed capacity to 5 gigawatts and form a complete technology and industrial chain. Afterward, China's offshore wind power will enter into a phase of large-scale development and is estimated to reach 30 gigawatts in 2020, according to the energy plan and renewable energy plan during the 12th Five-Year Plan. (Further details in source: [People](#))

China, US unis launch joint institute for new energy

The Shanghai-based East China Normal University announced its partnership with the US Colorado State University to establish a new institute for scientific study in the field of new energy utilization and environment protection. The Joint Research Institute for New Energy and Environment (JINEE) will focus on the study of efficiency use of new energy, technology innovation, as well as the sustainable development of ecological environment. To strengthen R&D ability and improve solar cell conversion efficiency will be one of the key fields of the institute. In the meantime, the institute will carry out environment monitoring work and the study of effective utilization of water resources. Besides, the joint research institute will also set up a sharing mechanism for intellectual property rights so as to ensure the mutual interests. The two parts will share the research results in the institute. (Further details in source: [China Daily](#))

Transport (including aeronautics)

China steps up energy saving in transport

China will strengthen energy saving and emission reductions in road and waterway transport in the next five years as the central government decides to allocate funds to support it. According to a document jointly released by the Ministry of Finance and the Ministry of Transport, public institutions and companies that carry out energy-saving and emissions-reducing work will be eligible for the funding support. (Further details in source: [China Daily](#))

China's C919 passenger plane makes overseas debut at Paris Air Show

A real-size demo mock-up of C919 trunkliner's forward fuselage was unveiled at the ongoing 49th Paris Air Show, a debut for the first China-made large passenger aircraft at an international stage outside China. The mock-up showcased the cockpit and forward part of the cabin -- 17 meters in length, 5.6 meters in height and 3.96 meters in width. It was first displayed to the public at the 2010 Zhuhai Air Show in China's Guangdong Province. (Further details in source: [Xinhua net](#))

Chinese-made C919 jumbo jet to fly worldwide

The Commercial Aircraft Corporation of China will actively expand into overseas markets on the basis of indigenous innovation and international cooperation, the company's President Jin Zhuanglong said at the International Paris Air Show at Le Bourget on June 20. Jin said that the development of the homegrown C919 jumbo jet is "well underway." Solid groundwork has been laid, and the master plans for technology development, production and customer service have been formulated. The research and development for the digital mock-up of the C919 and seven main sections of a sample C919 has also completed. The company will complete contract signings with all C919 project suppliers and start manufacturing the parts for C919 this year. Jin said that the C919 jumbo jets are single-aisle planes with 168 to 190 seats, and they are independently designed by the Commercial Aircraft Corporation of China. The flying range of the aircraft stands between 4,075 kilometers and 5,555 kilometers. The design of the C919 jumbo jet is divided into five phases: project study and approval, feasibility study, pre-development, engineering development and batch production and industrialization. (Further details in source: [People](#))

China's aerospace manufacturer opens Europe office in Paris

Commercial Aircraft Corporation of China Ltd. (Comac) set up its European office in Paris, the second overseas branch after its U.S. office, marking a new step for China's aviation industry in opening-up and international exchanges. "Taking self-dependent innovation as the strategic cornerstone, Comac meanwhile actively conducts international cooperation and draws upon advanced technologies and experience in global civil aviation industry...", Comac President Jin Zhuanglong said. (Further details in source: [Xinhua net](#))

China's aerospace manufacturer seals deal with engine maker

Commercial Aircraft Corporation of China, Ltd. (Comac) signed a contract with CFM International, making the engine maker the sole overseas supplier for its C919 passenger plane's propulsion system. The LEAP-X1C engine under development by CFM International was designated as the only powerplant for C919, the first Chinese-made trunkliner. (Further details in source: [People](#))

Comac, Ryanair eye cooperation on C919

Comac and Irish airline Ryanair inked an agreement to cooperate in the development of China's large passenger aircraft, the C919. Jin Zhuanglong, general manager of Comac, and Michael O'Leary, chief executive of Ryanair, signed the memorandum of understanding in Comac's newly opened European office in Paris. According to the deal, the two companies will work together in research and development, airworthiness and customer services on the C919 project. (Further details in source: [People](#))

Partnership formed for C919 plane

COMAC began its first joint venture with a foreign company in the hope of using world-class manufacturing techniques in the production of the homegrown C919 airplane. The partnership between the Shanghai Aircraft Manufacturing Co Ltd (SAMC), a subsidiary of COMAC, and the United States-based Eaton Corp, a company specializing in systems used to control and distribute energy, is among 17 strategic agreements COMAC has reached with various aviation companies. The Eaton SAMC (Shanghai) Aircraft Conveyance System Co Ltd will be situated

in the Shanghai Pudong Lujiazui Software Park and will concentrate on the design, development and manufacture of the fuel and hydraulic conveyance systems needed for COMAC's production of the C919, said Lu Xiao'an, the director of the new venture. (Further details in source: China Daily)

Blueprint for China developed aircraft engine to be released in 2011

An overall design plan for an indigenously developed large passenger-jet engine is expected to be released by the end of the year, the Commercial Aircraft Corporation of China (COMAC) confirmed. A research and design team of 500 professionals is working on developing the engine. (Source: [Global Times](#))

China's first professional expo on helicopters to be held in Sept

The first China International Helicopter Exposition will be held in north China's port city of Tianjin from September 15 to 18. The helicopter exposition will focus on displaying the latest complete machines, engines, avionic systems and airborne equipments from home and abroad. Meanwhile, academic seminars, business negotiation meetings and aerobatics will be held as well. The Exposition is scheduled to be held every other year from 2011, as the complement of China International Aviation and Aerospace Exhibition held in south China's port city of Zhuhai. (Further details in source: [People](#))

High-speed technology eyes US patents

CSR Corporation Limited, one of China's two manufacturers of high-speed trains, is mulling over whether to apply for patents for its CRH380A train in the United States. Ma Yunshuang, deputy general manager and technology director of CSR Qingdao Sifang Co Ltd, which developed the CRH380A train, said that the company has hired US lawyers to assess its intellectual property rights for the train and compare them to existing patents in the US. (Further details in source: [People](#))

Premier Wen boards bullet train as Beijing-Shanghai high-speed rail starts operation



Premiere Wen Jiabao on 30 June joined other passengers to board the first bullet train on the landmark high-speed railway between the metropolises of Beijing and Shanghai, calling it a "new chapter" in China's railway history. The railway links China's most prosperous regions of the Pan-Bohai areas and Yangtze River Delta economic zones, cutting travel time between the two regions to about five hours. The high-speed railway, which has been operating on a trial basis since mid-May, opened one year ahead of schedule. Although the railway is designed to handle maximum speeds of 350 kmph, most of

the trains will run at speeds between 250 and 300 kmph. (Further details in source: [Xinhua net](#))

Russia invites China for high-speed rail cooperation

As Russia expands its railway construction, China could enjoy greater cooperation potential with Moscow in the sector, especially on high-speed rail projects, says the president of the state-run

Russian Railways company Vladimir Yakunin. Russia and China inked in 2009 a memorandum of understanding on jointly developing the high-speed railway system in Russia. (Further details in source: [China.org](#))

Qingdao bridge sets world record

The world's longest cross-sea bridge, spanning Jiaozhou Bay of Qingdao in East China's Shandong province, opened to traffic amid a major effort to further consolidate this coastal city into an international shipping center for Northeast Asia. The 41.58-km, eight-lane Qingdao Jiaozhou Bay Bridge, connecting the urban district of the city to its Huangdao district, cost 14.8 billion yuan (\$2.3 billion). Construction started in May 2007. (Further details in source: [China Daily](#))

Socioeconomic sciences and the Humanities

China has 657 cities at all levels: report

After a series of administrative changes to urban divisions last year, China currently has 657 cities at all levels, said a report entitled "The Statistical Report on China's Social Service development in 2010," released by the country's Ministry of Civil Affairs. Chinese cities across China largely fall into three levels: province-level cities, also known as municipalities, such as Beijing and Shanghai, prefectural cities and county-level ones. (Further details in source: [People](#))

Beijing, Shanghai top China's well-being index

Beijing, Shanghai and Tianjin topped the charts of a well-being index that is part of an academic report released by the Beijing Normal University. The report is a review of the overall development of people's livelihood in China during the 11th Five-Year Plan (2006-2010). It carried out a quantitative analysis with a focus on each province. The key indicator, a well-being index, is calculated based on three main performances - livelihood standards, public services and social administration - and further divided into 13 categories. (Further details in source: [China Daily](#))

China publishes selection of 1921-49 CPC documents

A selection of important documents of the Communist Party of China (CPC) from its founding in 1921 through the founding of the People's Republic in 1949 has been published. The book will serve as a key tool for learners and researchers of the CPC history in the period of China's New-Democratic Revolution. (Further details in source: [China Daily](#))

Senior leader urges efforts to sinicize Marxism

Senior leader Li Changchun has called upon members of the Communist Party of China (CPC) to uphold the principle of serving the people while pushing forward the sinicization of Marxism with strengthened theoretic studies. Li, member of the Standing Committee of the Political Bureau of the CPC Central Committee, made the remarks at a seminar to commemorate the 90th founding anniversary of the CPC. Researchers on Party theories should strengthen their sense of responsibility and make more efforts in sinicizing Marxism and making the theory more up-to-date and popular, Li said. (Further details in source: [China Daily](#))

Space

China successfully launches new communication satellite

China successfully launched a new communication satellite, the Zhongxing-10, from its Xichang Satellite Launch Center in southwest Sichuan Province. The Zhongxing-10 was designed and manufactured by the China Academy of Space Technology under the China Aerospace Science and Technology Corporation. The satellite will provide communication, broadcasting and data transmission services for users in China and the Asia-Pacific region. It will replace the Zhongxing-5B satellite, which was launched in 1998. The launch was the 138th mission for the Long March carrier rocket series. (Further details in source: [Xinhua net](#))

China's first module of planned space station to undergo final testing before launch

China's first module of a planned space station has been transported to a launch center in western Gansu Province where it will undergo final tests before its scheduled launch later this year. Designed to serve as a platform for China's future spacecraft to rendezvous and dock with in outer space, Tiangong-1 will be carried into space on a Long March II-F carrier rocket, according to a spokesman for China's manned space engineering. (Further details in source: [Xinhua net](#))

"Quark Soup" Cooking

Scientists from China, India and USA determine the phase transition temperature from normal matter to quark matter. In its infancy, when the universe was a few millionths of a second old, the elemental constituents of matter moved freely in a hot, dense, soup of quarks and gluons. As the universe expanded, this quark-gluon plasma quickly cooled, and protons and neutrons and other forms of normal matter formed: the quarks became bound together by the exchange of gluons, the carriers of the "color" force. Beginning in 2000, Relativistic Heavy Ion Collider (RHIC) located in Brookhaven National Lab (BNL), USA, was able to recreate the extreme conditions of the early universe in miniature by colliding massive gold nuclei at high energies. The high energy physics group of Department of Modern Physics in University of Science and Technology of China (USTC) designed the Multi-gap Resistive Plate Chambers (MRPC) based Time-Of-Flight detector for the STAR experiment. It significantly enhanced STAR particle identification capability. (Further details in source: [CAS](#))

China launches experimental satellite



China launched an experimental orbiter on 6 July in the country's Shijian satellite series from the Jiuquan Satellite Launch Center in northwestern Gansu Province. The satellite, SJ-11-03, was sent to space at 12:28 a.m. (Beijing time) by a Long March II-C carrier rocket, according to the launch center. The orbiter, developed by China Spacesat Co. Ltd under China Aerospace Science and Technology Corporation, will be used to conduct space scientific experiments, the company said. It has been the 139th flight of the Long March rocket

series. (Source: [Xinhua net](#))

People

Stricter Measures Taken to Ensure Fairness for China's Top Science Award

China has taken stricter measures to make sure that the ongoing selection of national science and technology award recipients is conducted in a "clean and fair" way. The National Science and Technology Award, established in 2000 by the State Council, or China's cabinet, is divided into five categories, including an award for international science and technology cooperation and an award for technological innovation. (Further details in source: [CAS](#))

Young Chinese scientists return for research opportunities

While China is attempting to lure more overseas scientists to work here, many Chinese talents who got their diplomas overseas are showing interest in returning. "Four years of PhD study in France was not enough to broaden my research, and I plan to return to a research institute after a brief period of gaining working experience in an electronics company in France," Guo Wei, a 29-year-old Chinese doctoral student at the Grenoble Institute of Technology in France, is one of 31 self-supporting scientific talents abroad who got a national scholarship and financial support from the Chinese Academy of Sciences (CAS) to fly back and talk with the institutes they are interested in. This initiative is one of the government's latest efforts to attract leading overseas scientists and researchers who work at prominent international institutions or enterprises through the Thousand Talents Program that China started in 2008. More than 800 people have signed up. Under the National Outline for Medium- and Long-Term Talent Development (2010-2020), released in June, China plans to increase its talent pool from 114 million to 180 million by 2020, when it will spend 15 percent of its GDP on human resources. (Further details in source: [China Daily](#))

BAI Chunli: CAS Invites More Foreign Scientists to Strengthen Its Innovation Capacity

"The Chinese Academy of Sciences (CAS) is open to more international scientists and young research fellows. Talents both home and abroad will strengthen our innovative force and help tackle major science and technology problems," said CAS President BAI Chunli at the Meeting of CAS Senior International Scientists and Young Fellows (2011). More than 70 overseas scientists attended the meeting and shared their collaboration research achievements in China during the past 12 months. The scientists represent 201 members of "CAS Visiting Professorships for Senior International Scientists" and 85 recipients of the "CAS Fellowships for Young International Scientists", who were selected into the two programs last year. The CAS launched the two fellowship programs in 2009, aiming to lure more foreign talents thus enhance its science and technology innovation capacity. A new international cooperation award -- CAS Cooperation Award for International Young Scientists -- will be launched to further encourage cross-cultural exchanges and scientific cooperation among the young scientists. (Further details in source: [CAS](#))

John Innes Centre Announces Collaboration with Chinese Academy of Sciences

The John Innes Centre (JIC) has launched a major collaborative venture with Institutes of the Chinese Academy of Sciences (CAS). This builds on the strong associations between JIC and China that began more than three decades ago. There are over 100 JIC alumni with academic positions in China, and many of these alumni are in senior positions, including three who are Academicians at CAS. The collaborative venture was launched at the Chinese Academy of

Sciences on June 7 with the signing in Beijing of a MoU by Professor Lu Yonglong, Director General of International Cooperation for CAS and by Professor Dale Sanders, Director of the JIC. The MoU envisages a program of mutually beneficial academic exchanges during the next two years, and, once established, the subsequent development of a CAS-JIC Institute. (Further details in source: [CAS](#))

China and France Jointly Train Application Engineers

A China-France engineer education seminar was held on June 14 in Paris. Representative from 38 Chinese universities and some 10 French universities attended the event. China Scholarship Council and Paris High-Tech Group signed a memorandum of understanding to support Chinese doctoral students pursuing their Ph.Ds or engaging in postdoctoral research at engineer schools in France. In addition to the academic exchange and students swap, the program has fostered education ties between the Beijing University of Aeronautics and Astronautics and GROUPE DES ECOLES CENTRALES School of Engineers, and between Tongji University and Paris Tech Group China-France Engineering and Management School, in an attempt to bring out more high-level application engineers. (Source: [MOST](#))

Boeing: China to need 72,700 airline pilots by 2030

Boeing Co. predicted in a recent report that China will need a total of 72,700 new commercial airline pilots and 108,300 maintenance technicians by the year 2030. According to Boeing's 2011 Pilot and Technician Outlook, as the global commercial fleet size is expected to increase to more than 39,500 airplanes over the next 20 years, the world aviation industry will require 460,000 new commercial airline pilots and 650,000 new commercial airline maintenance technicians by 2030. (Further details in source: [China.org](#))

Research infrastructures

SSRF Findings Sharing

Since its opening to the public two years ago, Shanghai Synchrotron Radiation Facility, the largest science project in China, has benefited more than a thousand users. The phase II project has become part of the major national S&T infrastructure projects for the 12th Five-year period (2011-2015), striving to be a world class R&D center. (Further details in source: [MOST](#))

China to launch new polar icebreaker in 2013

China's new icebreaker will debut in a polar expedition in 2013. The new icebreaker is able to research oceanic environment, integrate data for real-time oceanic monitoring, deploy and retrieve detectors, and conduct aerial studies with helicopters. By 2013, the new icebreaker and Xuelong ("Snow Dragon") will operate concurrently at both the north and south poles. (Further details in source: [China.org](#))

Chinese sub to delve 5,000 meters under Pacific Ocean

China's Jiaolong submarine, designed to be the world's deepest-diving submersible, set off on a journey that will see it delve down 5,000 meters into the Pacific Ocean,



topping its successful 3,759-meter dive last year. Currently loaded on the "Xiangyanghong 09" scientific exploration ship at a port in Jiangyin, Jiangsu Province, the Jiaolong will spend 47 days out at sea. It will put its performance and functions to the test, including seafloor photography, topographical measurements, and underwater environmental tests. (Further details in source: [Global Times](#))

China-Japan Deep Ice Drilling

China Polar Research Center and National Institute of Polar Research of Japan have recently developed a deep ice core drilling system, based on the successful ice drilling experience gathered by Japanese scientists at Dome F. The drilling system, designed to cope with the thicker ice sheet at Dome A, is able to collect ice cores at a depth of 4,000 meters under an extreme temperature up to -55°C. (Further details in source: [MOST](#))

International S&T relations

China-UK Joint S&T Committee Meeting

The 6th China-UK joint committee meeting on scientific and technological cooperation was held on June 7 in Beijing. WAN Gang, Chinese Minister of Science and Technology and David Willetts, British Minister of State for Universities and Science, co-chaired the meeting. At the meeting, some realignments and additions were made to the priority areas defined at the last joint meeting. The following priority areas were defined as the focus of the collaborations in the next two years: cutting-edge sciences, energy and renewable energy, environment, population and health, food security, application science, space science, innovation, and policy exchange. Both parties agreed to foster a closer tie at the government level, exploring to establish specific cooperation and supporting mechanisms. After the meeting, WAN and Willetts jointly undersigned the summary report of the joint committee meeting, where priority areas and cooperation mechanisms were defined for the future S&T and innovation collaborations. (Further details in source: [MOST](#))

China-France Joint S&T Committee Meeting

The 13th China-France joint committee meeting on scientific and technological cooperation was held on May 30 in Paris. WAN Gang, Chinese Minister of Science and Technology, and Valéochrie Péochresse, French Minister for Higher Education and Research, attended the meeting. The two sides discussed the future prospects and new initiatives for cooperation, putting an emphasis on the collaborations between industry, universities and research institutes, along with the following six priority areas for the next two years: sustainable development, biodiversity and water resources management, green chemistry and associated technology, life science, information science and associated technology, smart city, and advanced materials. (Further details in source: [MOST](#))

9th China-Slovenia JCM on S&T Cooperation Held in Beijing

The 9th China-Slovenia Joint Commission Meeting on S&T Cooperation was held in Beijing on June 16. The two sides briefed each other on the science and technology systems, policies, development and international cooperation. Reviewing the implementation of the projects approved at the 8th JCM, the two delegations exchanged ideas on promoting bilateral S&T collaboration and agreed upon the new joint projects. After the meeting, the two sides signed the

protocol, identifying 22 projects in the sectors of physics, mathematics, biology, medicine and environment. (Source: [MOST](#))

China-EU S&T Evaluation Workshop

China-EU Science and Technology Evaluation Workshop was held on June 9, 2011 in Beijing. The participants discussed a range of issues, including science and technology evaluation system, evaluation methods and theories, evaluation organizing and associated implementation. Peter Fisch, Director of Planning and Assessment under the EU Directorate General for Research and Innovation briefed the audiences of the FP7 monitoring and mid-term evaluation results. Experts from the MOST Science and



Technology Evaluation Center spoke about a range of issues, including S&T evaluation system, international evaluation of natural science foundation, national science and technology program evaluation, research institution evaluation, and international cooperation in the area. Participants also discussed science and technology evaluation related theories, methodologies, and experiences. After the meeting, a talk was held between the Science and Technology Evaluation Center and EU representatives. Both parties agreed to have more cooperation and exchanges in the area of information, comparative studies, and joint evaluation. (Further details in source: [MOST](#))

Cooperation on Applied Technology between China and South Korea

A ceremony was jointly staged by the Chinese Ministry of Science and Technology and the Korean Ministry of Knowledge Economy to witness the signing of an MOU on strengthening the collaborations in developing applied technologies and associated commercial applications. The two sides also discussed and defined ways of cooperation, management mechanisms, and intellectual property issues. (Further details in source: [MOST](#))

British University to launch Guangzhou centre

The University of Birmingham is to open a collaborative centre later this summer in Guangzhou, China, with the government of Guangzhou. The University of Birmingham Guangzhou Centre will help identify, design and co-ordinate the delivery of joint research projects in Guangzhou, the province of Guangdong and the broader Pearl River Delta region. The centre will also support knowledge transfer and engagement with business interests in the region, act as a base for research staff, and be a catalyst for the development of greater expertise on China within the University. Initial collaborative research themes for the centre include energy, advanced manufacturing, biotechnology, medicine and healthcare, computer science and software and urbanisation. (Further details in source: [China Daily](#))

Minister Wan Gang Accompanied Vice Chairman Xi Jinping to Italy

With the presence of VC Xi and PM Berlusconi, Minister Wan signed Memorandum of Understanding on Cooperation in Major Research Projects between MOST and the Italian Ministry of Education, University and Research (MIUR) with Deputy Minister Guido Possa of

MIUR and Framework Agreement on Regional Innovation between MOST and Tuscany with Enrico Rossi, President of the Tuscan region. These documents provided frameworks for enhancing cooperation in major science projects, construction of joint labs, connection of hi-tech zones and innovation synergy of industry, university and research institute. (Further details in source: [MOST](#))

Seminar on South-South S&T Cooperation to Address Climate Change Held

With the support of the International Cooperation Department of MOST, CSTEC held the Seminar on South-South Cooperation in Addressing Climate Change through Science and Technology in Nanjing and Hangzhou on May 19th and June 9th. The event aimed to give the participants a picture of China's South-South cooperation in water resource and renewable energy, sum up experiences and explore models of cooperation. (Source: [MOST](#))

President Chen Yiyu Meets with RFBR President

President Chen Yiyu met with President Vladislav Ya. Panchenko, RFBR (Russia Foundation for Basic Research). The two sides expressed mutual satisfaction with the bilateral cooperation and exchanged views on how to further promote substantial collaboration. Discussions were also carried out in jointly support research in areas of climate change and material science. NSFC and RFBR have been supporting exchange visit and bilateral workshop through joint call since 1997. The two sides are now actively exploring the possibility of joint funding in substantial research. (Further details in source: [NSFC](#))

Prof. Chen Yiyu Visits Greece, Spain and Germany



Prof. Chen Yiyu, President of NSFC, led a delegation to visit Greece, Spain and Germany from May 21 to June 1, 2011. During his visit in Greece, Prof. Chen met with Anna Diamantopoulou, the Minister of Education in charge of science and technology affairs. Both sides agreed to actively promote Sino-Greece collaboration in science and

technology and hope to sign the NSFC-GSRT bilateral cooperation agreement during the Minister's upcoming visit to China. In Spain, Prof. Chen Yiyu met with Prof. E. Bouboukas, Vice President of the Spanish National Research Council (CSIC) and discussed future substantial cooperation. They agreed to organize bilateral workshops in water resources and plant molecular biology, and meanwhile explore the opportunities to fund the substantial joint research projects by scientists from the two countries. The two sides also agreed to sign a new Memorandum of Understanding to provide guidance for future funding activities. In Germany, Prof. Chen met with Prof. Matthias Kleiner, President of DFG. Both sides exchanged their latest progress and discussed the ongoing Sino-German-Finnish Joint Call on immunology and other relevant issues concerning Sino-German Center and Sino-German interdisciplinary cooperation and research projects. (Further details in source: [NSFC](#))

State Councilor Meets with IEC Chairman

On June 15, State Councilor, Madam. Liu Yandong met with Mr. Zare, Chairman of the International Evaluation Committee (IEC) for the funding and management performance of the National Natural Science Foundation of China (NSFC). Madame Liu addresses the significance of IEC's evaluation on NSFC's performance on funding and management during past 25 years, which is the first time for the management of the science fund in China. Based on the principles of independence, objectivity, impartiality, and bearing a rigorous scientific attitude, IEC conducted an high-quality, efficient, comprehensive and systematic evaluation, which is not only highly instructive on improving the management performance of the funding for natural science in China, but also sheds light on the scientific management for other sectors concerned in China. NSFC is expected to stage more remarkable performance based on the evaluation results to promote construction, reforms and development of the National Natural Science Fund. The international evaluation is accomplished in more than one year by an international expert panel of 13 senior scientists from 6 countries. (Source: [NSFC](#))

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